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Fig. 2. (*g i k l o o x x*) the lid of the box, whose rim (*o x o x*), is a quarter of an inch deeper than the box (*o p* Fig 1), that the air-holes (*o*) may be pierced in its upper-part; and the lower-part is scolloped with wide scollops, for the air to pass through the holes (*p p* Fig. 1.)

Fig. 3. (*a b*) the milk-boiler, with the broad rim (*c d*), and perpendicular rim (*c e d f*) foldered to the horizontal rim; the perpendicular rim to enter the circular groove (*e f*) four inches deep full of sand, thereby to prevent the ascent of the smoke from the fire-stove.

LVII. *Extract of a Letter of Thomas Barker, Esq; to the Reverend James Bradley, D. D. Astronomer Royal, and F. R. S. concerning the Return of the Comet, expected in 1757, or 1758.*

S I R, Lyndon, near Uppingham, Rutland, Dec. 17, 1754.

Read March 20,
1755.

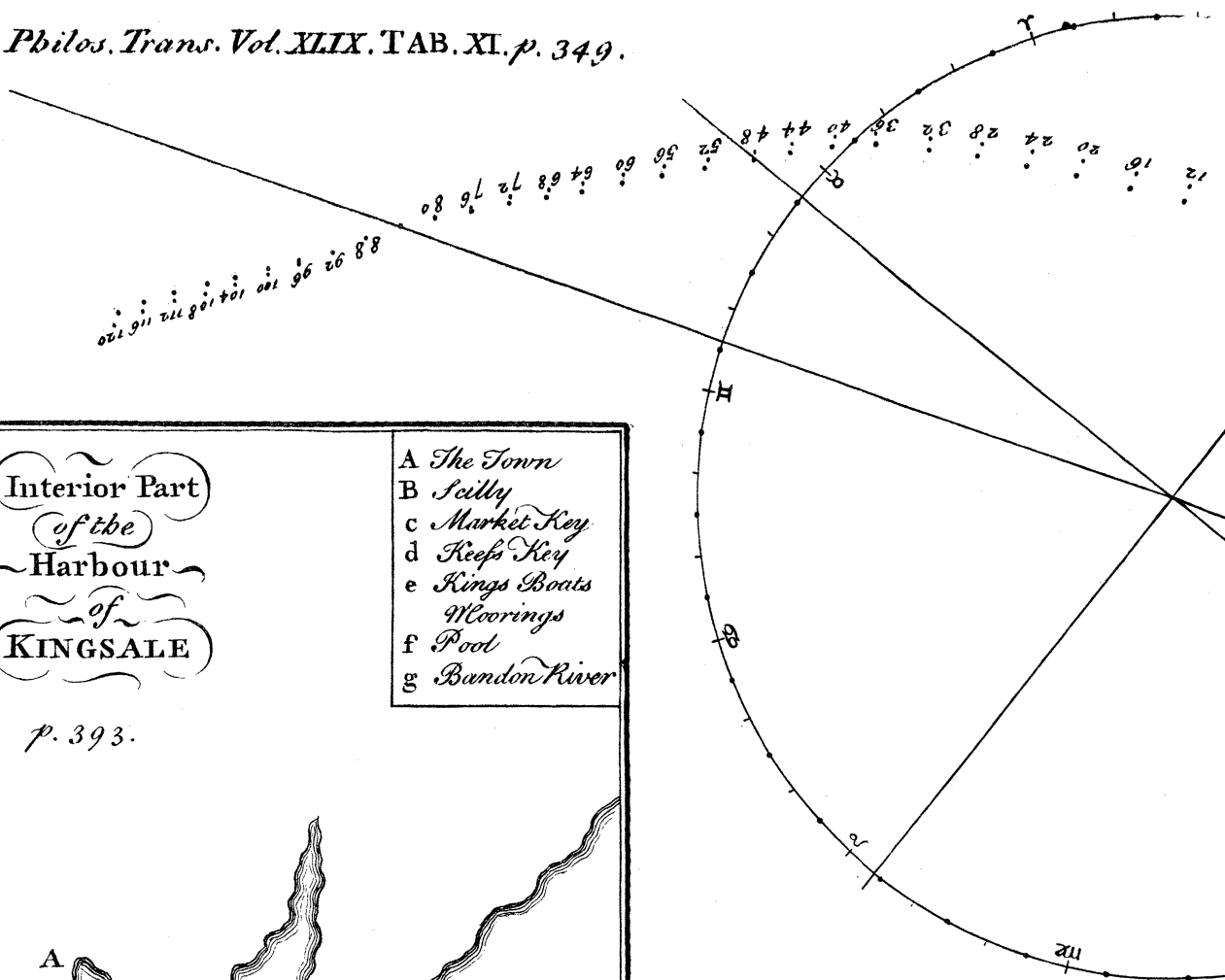
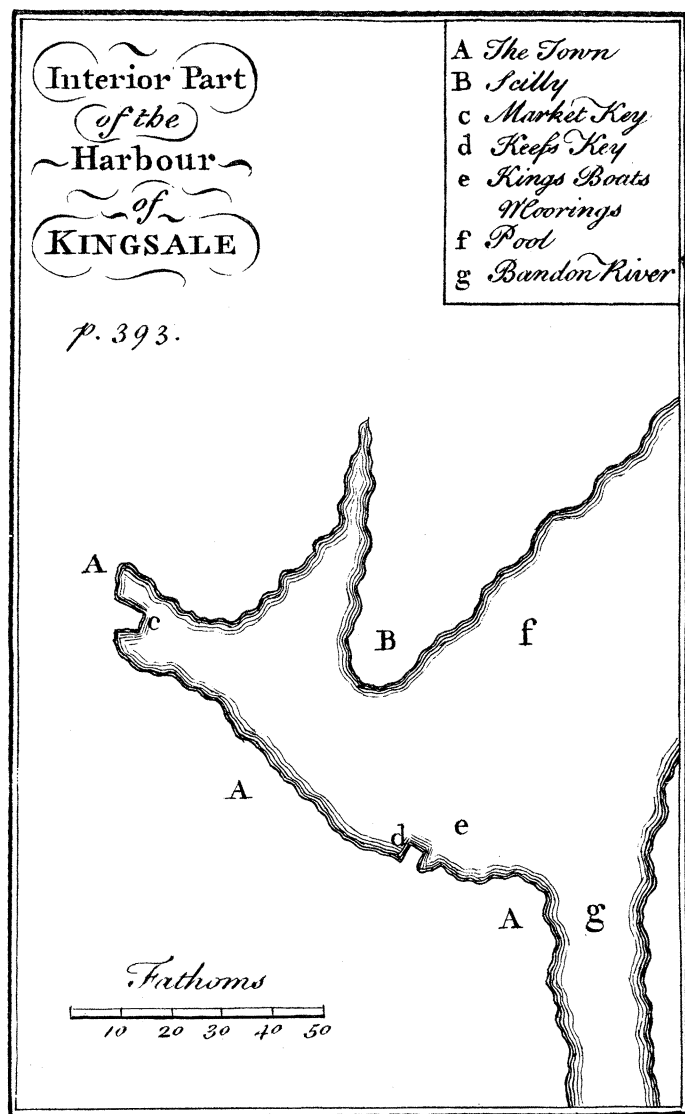
AS we expect the comet of 1531, 1607, and 1682, to return in 1757 or 1758, it is proper to be aware where to look for it. But that will be very different, according to the time of the year it comes; and its period is not sufficiently known to fix the month of its next perihelion, which should be July 25, 1757, according to its last period; but the length of that before would make it Oct. 25, 1758. I have therefore, in 12 short tables, given the apparent path of the comet, supposing its perihelion any month in

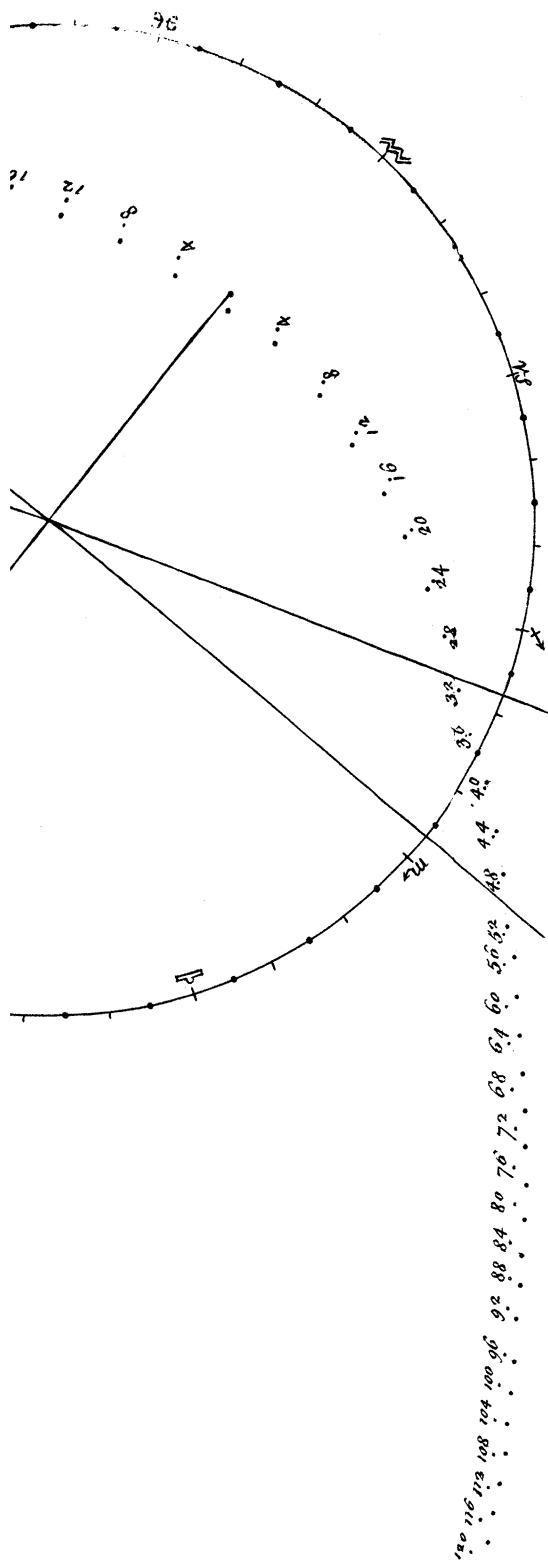
Y y 2 the

the year, with its curtate distance from the earth; and the two first articles of each are the places which it would probably begin to appear in. These will shew in general the course of the comet, especially at its first appearance, which is most wanted; but cannot be depended on where its motion is swift, and may be 40° in a day, the beginning of May, or middle of October. From these tables, compared with the scheme, I have made another, where the comet would begin to be seen any month in the year.

To construct the places, on a large sheet of paste-board, I divided the circumference of a circle ten inches radius into degrees, for the *magnus orbis*. On the right point of the ecliptic and focal length I drew a parabola like that observed in 1682, round the sun, the center of the circle, and marked every fourth day's motion from the perihelion, and the line of its nodes. The co-sine of the comet's inclination set off on perpendiculars to this, towards the several points of the parabola, forms the projection of it, or points in the plane of the ecliptic, over which the comet is at any time perpendicular.

To find the comet's place at any time, count how long it is before or after its perihelion, and mark the place in the projection of the parabola: lay one edge of a parallel-ruler through that point, and the place the earth is then in, and the other edge passing thro' the sun, will cut the *magnus orbis* at the geocentric longitude of the comet: The tangent of the comet's inclination making the perpendicular from the comet's projected place to the line of nodes, the radius is the tangent of its apparent latitude, making the curtate distance of the comet from the earth the
radius.





radius. For expedition thus; draw two lines, making an angle of $17^{\circ} 56'$: on one of them set off the perpendicular from the comet's projected place, and raise a perpendicular to the other; or, which is the same, from the comet's real place in the parabola; and let fall a perpendicular, that is the tangent of the geocentric latitude.

One observation of a known comet will, on such a scheme, determine in some measure its whole course; for, from the earth's place, draw the observed longitude of the comet, where that cuts the projection of the parabola is the comet's place; to which if the observed latitude agrees, it confirms it: Then the other data being already known, and one place given, its whole course may be traced. Such a scheme may be also of use to find the periods of comets, where the description of one is not good enough to find its orbit by; for if an old comet was seen in August, in ϖ , or in \S , with south latitude, or very bright in January, it cannot be the comet of 1682; but if in November in γ , near the ecliptic, it may. It then remains to see, whether the rest of the description will agree with the course it would in that case take: if it does, then, as the account is more or less perfect, there is a greater or less probability of its being the same. (See PLATE XI.).

A TABLE shewing where the Comet may be expected to begin to appear any Month.

LVIII.

Month	begin end	Scarce to be seen Retr. between 30° & 15°	Lat. Small increasing S. Small N. or S. Small N. decreasing Small N. decreasing Small N.	Time from Perihelion
January	end			7 Weeks after Perihelion
February	begin			
March	end	30° & 15°	Small N. or S.	2 Month after Perihelion
April	begin	30° & 0°	Small N. decreasing	
	end	15° & 0°	Small N. decreasing	2 or 3 Weeks after
May	begin	Stat. 10° & 20°	Small N.	
	end	middle γ		about Perihelion
June	begin	Dir. begin. γ	N.	1, 2, or 3 Weeks
	end	begin. γ		
July	begin	end γ		
	end	begin. II		
August		middle II		
September		end II		
October		Stat. 25° & 30° II	N. increasing	2 to 5 Weeks before
		Retr. end II	Small increasing N.	5 to 8 Weeks before
November	begin	begin. II	Small S. or N.	2 Months before Perihelion
	mid.	5° II & 20°		2 or 3 Months
December	end.	begin. γ		3 Months before Perihelion
	begin	begin. γ end. γ		
	end	begin. γ	Small S. or N. very faint	11 to 14 Weeks